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INVESTIGATING PARENTAL PERCEPTIONS OF SCHOOL HYGIENE PRACTICES AND ITS IMPACT ON LOWER PRIMARY SCHOOL PUPILS' HEALTH AND ACADEMIC PERFORMANCE

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This study examined parental perceptions of school hygiene practices and their impact on pupils' health and academic performance in lower primary schools in Ibadan South West Local Government, Oyo State. A mixed-methods design was employed with 200 participants (150 parents and 50 pupils), using structured surveys, observation checklists, and semi-structured interviews. Quantitative data were analyzed using descriptive statistics, chi-square tests, and regression analysis, while qualitative data underwent thematic coding. Integration was achieved through triangulation, where statistical trends were cross-validated with parental narratives.

Findings revealed that while fingernail checks and classroom sweeping were widely implemented, toilet cleaning and compound maintenance were poorly managed, especially in public schools. Parents valued hygiene but expressed concerns over inadequate facilities and inconsistent routines. Pupils in schools with stronger hygiene practices reported fewer cases of diarrhea, respiratory infections, and skin diseases, which translated into reduced absenteeism and better academic outcomes. Regression analysis confirmed a significant predictive link between hygiene practices and pupils' performance.

Anchored on the Health Belief Model (HBM) by Rosenstock, Hochbaum, Kegels, and Leventhal (1950s) and the Social Cognitive Theory (SCT) by Albert Bandura (1977, 1986), the study concludes that hygiene is central to both child well-being and learning. It recommends structured hygiene routines, increased government investment in WASH infrastructure, stronger parental involvement, and continuous monitoring to improve school health and academic outcomes.

Keywords*:* School hygiene, Parental perception, Pupils' health, Academic performance

Introduction

The health and academic success of pupils in lower primary schools are shaped not only by the quality of classroom instruction but also by environmental and personal hygiene practices. School hygiene involves routine activities such as checking pupils' fingernails during assembly, sweeping classrooms, cleaning toilets, and maintaining the school compound through grass cutting. These practices are fundamental to health promotion in schools, particularly in low- and middle-income countries like Nigeria, where poor sanitation and limited hygiene infrastructure remain major contributors to infectious disease prevalence among children (Adewoyin et al., 2025).

Globally, inadequate school hygiene has been strongly linked to intestinal parasitic infections, diarrheal diseases, and high absenteeism rates among school-aged children (Jasim, 2025). In Nigeria,

poor school sanitation conditions contribute to recurrent outbreaks of communicable diseases, malnutrition, and impaired cognitive development. Such health issues negatively affect pupils' learning outcomes, as children exposed to unhygienic environments often suffer from absenteeism and reduced academic performance (Ekeh & Onuike, 2025). These observations affirm that school hygiene practices function as both preventive health measures and educational interventions.

Parental perceptions also play a critical role in sustaining school hygiene initiatives. When parents recognize the benefits of hygiene practices, they are more inclined to support policy enforcement and resource mobilization for sanitation

programs (Chifamba et al., 2025). Conversely, lack of parental awareness or involvement can weaken the impact of school-based interventions. This dynamic underscores the importance of exploring parental perspectives on hygiene practices and their implications for both health and educational outcomes in Nigeria.

School hygiene practices, such as fingernail checks, classroom sweeping, and compound maintenance through grass cutting, align with global Water, Sanitation, and Hygiene (WASH) initiatives. These measures are essential for preventing communicable diseases, including diarrhea and respiratory infections, which are particularly prevalent among young children due to their frequent physical interactions and immature immune systems. In Nigeria, disparities in WASH facilities between public and private schools exacerbate health risks, especially in rural and low-income areas where inadequate infrastructure reduces hygiene adherence and contributes to higher morbidity rates (Wada et al., 2022).

International evidence reinforces this connection. In Ethiopia, for example, personal hygiene practices among elementary pupils were reported at 59.2%, influenced by parental education and access to handwashing facilities, both of which were associated with reduced illness rates (Minda et al., 2024). Similarly, in Pakistan, multi-component school interventions—combining hygiene education with environmental maintenance such as floor sweeping and grass cutting—were effective in lowering disease prevalence by reducing vector breeding sites (Pradhan et al., 2020).

Evidence from Nigeria further confirms the positive outcomes of WASH-focused interventions. School-based hygiene education programs have significantly improved pupils' health practices, including oral care, handwashing, and environmental cleanliness, particularly in lower basic schools (Ajayi & Qudus, 2022). Nevertheless, challenges persist in rural settings where open defecation remains widespread, affecting nearly one-quarter of students and exacerbating gastrointestinal health issues that interfere with school attendance and engagement (Wada et al., 2022).

Globally, meta-analyses have shown that well-designed school hygiene programs can reduce infection-related absenteeism by up to 26%, thereby supporting both improved health and enhanced learning outcomes (Ismail et al., 2024). In China, poor toilet cleanliness has been associated with avoidance behaviors among pupils, resulting in health risks such as urinary tract infections and reduced school participation (Shao et al., 2021). Importantly, parental involvement remains a central factor: higher parental education levels are associated with improved hygiene knowledge among children and reduced engagement in risky practices, reinforcing the need for active community participation in school hygiene initiatives (Minda et al., 2024).

Taken together, these insights highlight the dual role of school hygiene practices as both health and educational strategies. They also emphasize the need to investigate parental perceptions of specific hygiene practices—such as fingernail checks, sweeping, toilet cleaning, and grass cutting—and how these perceptions influence the health and academic performance of lower primary pupils in Nigeria.

This study is anchored on the Health Belief Model (HBM) by Rosenstock, Hochbaum, Kegels, and Leventhal (1950s) and the Social Cognitive Theory (SCT) by Albert Bandura (1977, 1986). Both frameworks complement each other in explaining how individual beliefs, social influences, and environmental factors shape health-related behaviors such as hygiene practices in schools.

The HBM emphasizes that "a person will take a health-related action if that person feels that a negative health condition can be avoided, has a positive expectation that by taking a recommended action he or she will avoid a negative health condition, and believes that he or she can successfully take a recommended health action" (Rosenstock et al., mid-20th century). This suggests that parents' perceptions of their children's susceptibility to illness, the severity of hygiene-related diseases, and the benefits versus barriers of school hygiene practices influence whether they support and encourage such practices.

The SCT, on the other hand, asserts that "people learn by observing others, and their own beliefs about their capabilities (self-efficacy) influence whether they will act on what they have learned" (Bandura, 1977; 1986). It highlights the interplay of personal beliefs, behaviors, and environmental conditions. In the school context, pupils may adopt hygiene practices through observing peers and teachers, while reinforcement—such as reduced illness and improved learning—strengthens these behaviors. Parental norms and expectations also shape school practices, while self-efficacy determines whether parents and teachers feel capable of sustaining hygiene initiatives.

By integrating HBM and SCT, this study provides a comprehensive lens to understand how parental perceptions, school practices, and pupils' behaviors interact to influence health outcomes and academic performance in lower primary schools.

Statement of the Problem

The health and learning success of children in lower primary schools are closely tied to hygiene practices within the school environment. Yet, many Nigerian schools still lack adequate sanitation facilities and structured hygiene programs. Pupils are often exposed to unclean toilets, poorly maintained classrooms, overgrown compounds, and personal habits such as long fingernails that harbor germs. These conditions increase children's vulnerability to infections, contribute to absenteeism, and hinder academic performance.

Although previous studies have explored the school environment in relation to learning, little attention has been given to how parents view specific hygiene practices like fingernail checks, toilet cleaning, sweeping, and grass cutting, or how these views influence children's health and academic progress. Parental involvement is critical because their support determines how well school hygiene programs are sustained.

Disparities between private and public schools further complicate the issue, with many public schools lacking even basic

hygiene facilities. Such inequalities leave pupils in disadvantaged communities at greater risk of diseases that interfere with their education. Without addressing these challenges, efforts to improve children's health and learning outcomes through hygiene promotion will remain limited.

This study seeks to investigate the extent to which hygiene facilities and practices, such as fingernail checks, classroom sweeping, toilet cleaning, and compound maintenance, are implemented in lower primary schools in Nigeria. It also aims to explore how parents perceive these hygiene practices in relation to their children's health and to examine the degree to which such practices influence pupils' health outcomes, particularly the prevalence of common diseases and related absenteeism. Furthermore, the study will assess the connection between school hygiene practices and pupils' academic performance, highlighting how a healthy learning environment supports educational achievement.

Purpose of the Study

The main purpose of this study is to investigate parental perceptions of school hygiene practices and their impact on the health and academic performance of lower primary school pupils in Nigeria.

The specific objectives are to:

Assess the extent of hygiene practices and facilities in Nigerian lower primary schools.
Explore parents' perceptions of school hygiene practices in relation to children's health.
Determine the impact of school hygiene practices on pupils' health outcomes.
Examine the connection between hygiene practices and academic performance among pupils.

Research Questions

This study seeks to answer the following questions:

What is the extent of hygiene facilities and practices, including fingernail checks and environmental maintenance, in lower primary schools in Nigeria?
How do parents perceive the role of school hygiene practices in their children's health?
To what degree do school hygiene practices impact pupils' health outcomes, such as prevalence of diseases?
What is the connection between school hygiene practices and pupils' academic performance?

Research Methodology

This study employed a mixed-methods design to investigate school hygiene practices, parental perceptions, and their influence on pupils' health and academic performance in Ibadan South West Local Government, Oyo State, Nigeria. The design combined quantitative data to measure hygiene practices and outcomes with qualitative insights to capture parental experiences and perspectives.

A total of 200 participants were involved, comprising 150 parents and 50 pupils from selected lower primary schools. The sample size was determined to provide adequate statistical power, though no

formal power analysis was conducted. A multistage sampling technique was applied: schools were first stratified into public and private categories, four from each group were randomly selected, and within them, pupils and their parents were proportionally sampled to ensure representation.
Data were collected between January and March 2025, using three instruments: (i) structured questionnaires for parents, (ii) observation checklists assessing hygiene facilities and practices, and (iii) semi-structured interviews with 20 purposively selected parents. The instruments were validated by experts and pilot-tested in a neighbouring local government, yielding a Cronbach's alpha of 0.78, which confirms their internal reliability. Inter-rater reliability checks were applied to observational data to ensure consistency.
Quantitative data were analysed using descriptive statistics (frequencies, percentages, means, standard deviations) and inferential tests, including chi-square and multiple regression to examine associations and predictive effects of hygiene practices on health and academic outcomes. Qualitative data were analysed through a thematic analysis process: transcripts were coded independently by two researchers, codes were grouped into categories, and recurring patterns were synthesised into themes such as parental support, barriers to hygiene, and the influence of cleanliness on learning.
Ethical approval was obtained from the Federal College of Education (Special) Oyo Research Ethics Committee. Additionally, an introductory letter collected from the Head of Department, Early Childhood Care and Education, Federal College of Education (Special), Oyo, was presented to the heads of all participating schools to obtain institutional permission. Informed consent was secured from all participants, and confidentiality was maintained by anonymizing data and restricting access to research materials. These measures ensured that the study adhered to established ethical standards while maintaining credibility and trust with participants.

Results of Findings
Participant Characteristics

Out of 220 distributed questionnaires, 200 were returned, yielding a 91% response rate. The final sample included 150

parents (70% female, 30% male; age range 28–55 years) and 50 pupils (52% male, 48% female, ages 6–9). Missing data (3.5%) were handled using pairwise deletion. Statistical assumptions for regression (normality, linearity, homoscedasticity, and multicollinearity) were checked and met acceptable thresholds.

Quantitative Findings

Table 1: Extent of Hygiene Facilities and Practices in Lower Primary Schools

Hygiene Practice	Adequate (%)	Inadequate (%)	Not Available (%)
Fingernail checks at assembly	55.0	30.0	15.0
Classroom sweeping	70.5	20.0	9.5
Toilet cleaning	42.0	35.0	23.0
Grass cutting/compound cleaning	48.5	32.0	19.5

Interpretation & Implication: Routine practices such as classroom sweeping were adequate (Cohen's h = 0.62, medium effect), but critical activities like toilet cleaning remained insufficient. This imbalance highlights persistent sanitation gaps that could increase pupils' risk of infection.

Table 2: Parental Perceptions of Hygiene Practices on Children's Health

Perception Statement	Agree (%)	Neutral (%)	Disagree (%)
Hygiene checks prevent common diseases	68.0	17.0	15.0
School toilets are safe for children's health	39.0	21.0	40.0
Poor hygiene leads to absenteeism	72.5	13.0	14.5
Parents should support	81.0	10.0	9.0

school hygiene programs			

Interpretation & Implication: Most parents recognized hygiene's role in preventing diseases (Cramer's V = 0.41, $p < .001$, medium association). However, only 39% believed school toilets were safe, suggesting low parental confidence in sanitation infrastructure.

Table 3: Impact of Hygiene Practices on Pupils' Health Outcomes (Chi-square with Effect Sizes)

Health Outcome (Reported Cases)	High Hygiene Schools (%)	Low Hygiene Schools (%)	χ^2	p	Cramer's V
Diarrhea (past month)	12.0	34.0	15.62	0.001	0.28
Respiratory infections	18.0	29.0	6.48	0.011	0.18
Skin diseases	9.0	21.0	7.34	0.007	0.19

Interpretation & Implication*:* Pupils in low-hygiene schools reported significantly higher illness rates. The effect sizes (Cramer's V = 0.18–0.28, small–medium) confirm that hygiene has a meaningful protective role against disease burden.

Table 4: Regression Analysis of Hygiene Practices and Academic Performance

Predictor (Hygiene Practice)	β	95% CI	t-value	p-value
Fingernail checks	0.21	[0.04, 0.38]	2.48	0.014
Classroom sweeping	0.18	[0.01, 0.35]	2.07	0.038
Toilet cleaning	0.29	[0.13, 0.45]	3.52	0.001
Grass cutting/compound cleaning	0.15	[-0.01, 0.31]	1.95	0.052

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Interpretation & Implication: Toilet cleaning was the strongest predictor of academic performance (β = 0.29, CI [0.13–0.45]), explaining 18% of variance in test scores (adjusted $R^2 = .18$). Schools with stronger hygiene practices reported improved pupil performance and reduced absenteeism. A figure (not shown here) is recommended to visualize the relationship between hygiene indicators, health outcomes, and academic performance.

Qualitative Findings

Theme 1: Parental Support for Hygiene Practices

Parents endorsed practices such as fingernail checks and sweeping. One parent noted: "When teachers check nails every morning, my child remembers to keep them clean at home too."
Implication: Sustained parental buy-in can reinforce hygiene habits across home and school contexts.

Theme 2: Barriers to Effective Hygiene in Schools

Participants reported inadequate water supply and poor sanitation in public schools. One parent commented: "My daughter holds urine because the toilets are too dirty. This affects her concentration in class."
Implication: WASH infrastructural deficits undermine both health and learning, calling for urgent policy intervention.

Theme 3: Hygiene Practices and Children's Health

Parents linked illnesses directly to poor hygiene: "Every time the classroom is not swept well, my son starts coughing and misses school."
Implication: Improving daily hygiene routines can reduce disease-related absenteeism.

Theme 4: Hygiene and Academic Performance

Clean environments were associated with attentiveness and better performance: “In my son’s school, where the compound is always neat, the children are healthier and perform better.”
Implication: Hygiene promotion is not just a health measure but a strategy for academic enhancement.

Overall Integration

The convergence of quantitative and qualitative findings demonstrates that hygiene practices substantially influence pupils’ health and academic outcomes. Statistical evidence of reduced disease prevalence and improved performance was validated by parental narratives describing illness-linked.

Discussion of Findings

The first research question examined the extent of hygiene facilities and practices in schools. Results revealed that while routine activities such as classroom sweeping were relatively well implemented, critical areas like toilet cleaning and compound maintenance remained inadequate. This finding is consistent with reports that none of the public schools surveyed provided adequate sanitation and hygiene services, while private schools had comprehensive WASH facilities (Wada et al., 2022). Similarly, public school students exhibited significantly poorer hygiene practices, with a higher prevalence of open defecation compared to their private school counterparts (Wada et al., 2022). The implication is that without systemic investment in basic hygiene facilities, children remain exposed to environments that compromise both health and learning readiness.

The second research question explored parental perceptions of hygiene practices. Quantitative data indicated that most parents agreed on the health benefits of practices like fingernail checks and associated poor hygiene with absenteeism, although many expressed concerns over toilet safety. Qualitative findings reinforced this, showing that parents valued hygiene practices but were discouraged by infrastructural inadequacies and inequalities between private and public schools. This aligns with Nnaji (2023), who found that government schools were reported to have the highest number of facilities lacking water sources. Similarly, parental awareness and involvement were emphasized as key factors in sustaining school hygiene interventions (Putri, Rohaya, & Silaban, 2022). The implication is that parents are not merely passive observers but critical stakeholders whose perceptions can either strengthen or weaken hygiene initiatives, suggesting a participatory pathway for policy implementation.

The third research question focused on the impact of hygiene practices on pupils’ health outcomes. The study found significantly lower rates of diarrhea, respiratory infections, and skin diseases among pupils in schools with stronger hygiene practices. Parents corroborated these findings by reporting frequent illness and absenteeism in poorly maintained schools. These results support Okoro (2024), who emphasized that inadequate hygiene practices increase the risk of

communicable diseases among pupils. Mechanistically, poor hygiene facilities increase exposure to pathogens, leading to recurrent illness and missed school days, which in turn disrupt learning continuity and reduce cognitive engagement. This highlights how health mediates the pathway between environmental quality and educational attainment.

The fourth research question examined the connection between hygiene practices and academic performance. Regression results showed that toilet cleaning was the strongest predictor of academic outcomes, followed by fingernail checks and classroom sweeping. Parents also observed that children in cleaner schools appeared healthier, more attentive, and academically stronger. This supports international findings by Srećković et al. (2024), who demonstrated that school hygiene interventions reduce infection-related absenteeism, thereby improving academic outcomes. Beyond attendance, clean environments reduce distractions, promote psychological safety, and improve pupils’ concentration in the classroom. Thus, hygiene practices act through both direct (reducing illness) and indirect (enhancing psychosocial well-being) mechanisms to foster learning, reinforcing the health–education link proposed in ecological and human capital perspectives.

Overall, the findings highlight a dual challenge: infrastructural deficits in school hygiene facilities and the need for stronger parental engagement. Addressing these challenges requires multi-level strategies that combine government investment in WASH infrastructure, community sensitization, and school-based enforcement of daily hygiene practices. By doing so, schools can create healthier environments that foster well-being, strengthen resilience, and enhance academic achievement, thereby contributing to Sustainable Development Goal 4 on quality education.

Summary

This study investigated hygiene practices in lower primary schools in Ibadan South West Local Government, focusing on facility availability, parental perceptions, and impacts on pupils' health and academic performance. Quantitative findings showed that sweeping and fingernail checks were relatively common, but toilet cleaning and compound maintenance were frequently neglected. Parents valued hygiene practices yet expressed concerns over inadequate facilities, particularly in public schools. Pupils in schools with stronger hygiene practices recorded fewer cases of diarrhea, respiratory infections, and skin diseases, with improved attendance and learning outcomes. Regression results further established that hygiene practices, especially toilet cleaning, significantly predicted academic performance. Qualitative findings reinforced these patterns, highlighting parental support, infrastructural barriers, and the direct link between clean environments, health, and academic success.

Limitations

Several limitations should be acknowledged. First, the study relied on self-reported practices from parents and observed facilities, which may have introduced reporting or observer bias. Second, the cross-sectional design limited the ability to establish causal relationships between hygiene practices and outcomes, as longitudinal monitoring would provide stronger evidence of temporal effects. Third, the study was conducted within a single local government (Ibadan South West), which may limit the generalizability of findings to other regions with different cultural or infrastructural contexts. Fourth, the qualitative sample was restricted to 20 parents, which may not fully capture the diversity of parental perspectives. Finally, while inter-rater reliability was established for observational data, variability in interpretation could not be entirely eliminated.

Despite these limitations, the study contributes meaningfully to existing theories on health–education linkages by showing that school hygiene practices influence academic performance not only by reducing absenteeism but also by fostering concentration and engagement. This extends ecological and health-capital frameworks by demonstrating that investments in hygiene infrastructure represent both a health intervention and an educational strategy.

Conclusion

The study concluded that hygiene practices in lower primary schools remain uneven, with infrastructural deficits undermining efforts to promote child health and academic achievement. Parents recognize the importance of hygiene but are hindered by poor facilities and inconsistent implementation of hygiene programs. Strong hygiene practices were found to directly improve pupils' health and indirectly enhance academic performance by reducing absenteeism. Therefore, hygiene in schools should not be treated as a peripheral activity but as an integral part of educational planning and delivery.

Recommendations

Schools should institutionalize structured hygiene routines, including daily toilet cleaning, fingernail checks, classroom sweeping, and compound maintenance, as part of core school management practices.

Government should prioritize investment in WASH infrastructure by ensuring functional water supply, safe toilets, and regular maintenance in public schools, reducing inequalities between public and private institutions.

Parents should be actively engaged in hygiene promotion, through sensitization and partnerships with schools, to strengthen home–school collaboration in reinforcing healthy habits among pupils.

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Teachers and school management should integrate hygiene education into the curriculum, ensuring that pupils understand the health risks of poor hygiene and practice cleanliness as part of daily learning.

Health and education authorities should monitor and evaluate hygiene practices in schools regularly, linking compliance with broader health and academic performance indicators.

Community stakeholders should support hygiene initiatives, such as through school–community partnerships for facility maintenance and health campaigns, thereby sustaining hygiene practices beyond the classroom.

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